

## CLAIMS

What is claimed is:

1. A particulate neutralization system comprising:
  - (a) a duct having an exterior surface with a first opening and a second opening and an interior volume through which an air stream is directed;
  - (b) a lamp having at least one ultraviolet tube therein, said lamp fixed to said exterior surface over said first opening;
  - (c) an optically transmissible element secured to said duct between said lamp and said interior volume so as to prevent said air stream from contacting said ultraviolet tube; and
  - 10 (d) a light panel comprising a frame and a porous mat attached to said frame, said light panel slidably disposed through said second opening, removably secured to said duct and bisecting said air stream, said porous mat composed of a plurality of end emitting optical fibers, a first end of each said end emitting optical fiber disposed towards said lamp with said optically transmissible element there between, a second end of each said end emitting
  - 15 optical fiber disposed within said porous mat so as to communicate a plurality of ultraviolet beams to form a field through which said air stream passes.
2. The particulate neutralization system of claim 1, wherein said optically transmissible element is a lens.
3. The particulate neutralization system of claim 1, further comprising a pre-filter
- 20 upstream from said light panel.
4. The particulate neutralization system of claim 1, further comprising a post-filter
- 22 downstream from said light panel.

- 1     5. The particulate neutralization system of claim 1, wherein said first end of said end emitting optical fibers has a lens.
6. The particulate neutralization system of claim 1, wherein said second end of said end emitting optical fibers has a lens.
- 5     7. A particulate neutralization system comprising:
- (a) a duct having an exterior surface and an interior volume through which an air stream is directed;
- (b) at least two lamps each having at least one ultraviolet tube therein, said lamps fixed to said exterior surface with each over an opening in said duct;
- 10    (c) at least two optically transmissible elements wherein one said optically transmissible element is secured to said duct between each said lamp and said interior volume so as to prevent said air stream from contacting said ultraviolet tubes; and
- (d) a light panel comprising a frame and a porous mat attached to said frame, said light panel slidably disposed into said interior volume, removably secured to said duct and
- 15    bisecting said air stream, said porous mat composed of a plurality of end emitting optical fibers, a first end of each said end emitting optical fiber disposed towards one said lamp with one said optically transmissible element there between, a second end of each said end emitting optical fiber disposed within said porous mat so as to communicate a plurality of ultraviolet beams to form a contiguous field through which said air stream passes.
- 20    8. The particulate neutralization system of claim 7, wherein said optically transmissible element is a lens.
- 22    9. The particulate neutralization system of claim 7, further comprising a pre-filter

- 1 upstream from said light panel.
10. The particulate neutralization system of claim 7, further comprising a post-filter  
downstream from said light panel.
11. The particulate neutralization system of claim 7, wherein said first end of said end  
5 emitting optical fibers has a lens.
12. The particulate neutralization system of claim 7, wherein said second end of said end  
emitting optical fibers has a lens.
13. A particulate neutralization system comprising:
- (a) a duct having an exterior surface and an interior volume through which an air stream is  
10 directed;
- (b) at least two lamps each having at least one ultraviolet tube therein, said lamps fixed to  
said exterior surface with each over an opening in said duct;
- (c) at least two optically transmissible elements wherein one is secured to said duct  
between each said lamp and said interior volume so as to prevent said air stream from  
15 contacting said ultraviolet tubes; and
- (d) at least two light panels each comprising a frame and a porous mat attached to said  
frame, said light panels slidably disposed into said interior volume, removably secured to  
said duct and bisecting said air stream, each said porous mat composed of a plurality of  
end emitting optical fibers, a first end of each said end emitting optical fiber disposed  
20 towards at least one said lamp with one said optically transmissible element there between,  
a second end of each said end emitting optical fiber disposed within one said porous mat  
22 so as to communicate a plurality of ultraviolet beams to form at least one field through

- 1        which said air stream passes.
14. The particulate neutralization system of claim 13, wherein at least one said optically transmissible element is a lens.
15. The particulate neutralization system of claim 13, further comprising a pre-filter
- 5        upstream from said light panels.
16. The particulate neutralization system of claim 13, further comprising a post-filter downstream from said light panels.
17. The particulate neutralization system of claim 13, further comprising an intermediate-filter disposed between two said light panels.
- 10       18. The particulate neutralization system of claim 13, wherein said first end of said end emitting optical fibers has a lens.
19. The particulate neutralization system of claim 13, wherein said second end of said end emitting optical fibers has a lens.
20. A particulate neutralization method comprising the steps of:
- 15       (a) communicating a plurality of ultraviolet light beams into an air stream;
- (b) coupling said ultraviolet light beams into a field;
- (c) passing said air stream through said field; and
- (d) exposing a plurality of particulates within said air stream to said field.

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